

इंटरनेट

मानक

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Mazdoor Kisan Shakti Sangathan

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“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 14878 (2000): Test Chart for Plate Bending Machines [PGD
4: Metal Forming Machines]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक

प्लेट मोड़ने की मशीनों का परीक्षण चार्ट

Indian Standard

TEST CHART FOR PLATE BENDING MACHINES

ICS 25.120.10

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Metal-Forming Machines Sectional Committee had been approved by the Basic and Production Engineering Division Council.

This Indian Standard has been prepared based on the expertise available in the Indian industry.

While formulating this standard, considerable assistance has been derived from DIN 55805-1979 'Sheet metal bending rolls — Acceptance conditions', issued by the Deutsches Institut Für Normung (DIN).

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed, or calculated, expressing the result of a test, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Indian Standard***TEST CHART FOR PLATE BENDING MACHINES****1 SCOPE**

This standard describes both geometrical and practical tests on plate bending machines and corresponding permissible deviations.

2 PRELIMINARY REMARKS

2.1 Before carrying out the tests, the machines shall be levelled in accordance with the manufacturers instructions which should be supplied, in sufficient detail with each machine.

2.2 In order to make checking or mounting of instruments easier, test may be carried out in any convenient sequence.

2.3 When inspecting a machine, it is necessary to carry out all tests described in this standard, except

for the tests which may be omitted in mutual agreement between the buyer and the manufacturer.

Whenever alternate methods of testing are suggested, the choice of actual method of testing is left to the manufacturer.

3 TESTING INSTRUMENTS

The testing instruments shall be of the approved type and shall be calibrated at a recognized temperature conforming to the relevant Indian Standards.

4 ACCURACY REQUIREMENT

The test to be carried out, the instrument required the maximum permissible deviations and the manner of carrying out the tests shall be as detailed in the test chart.

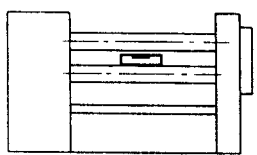
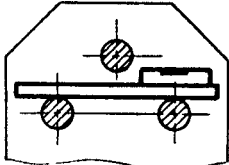
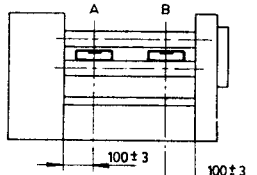
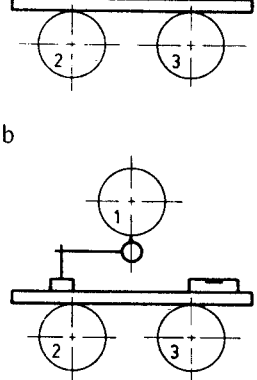
TEST CHART FOR PLATE BENDING MACHINES

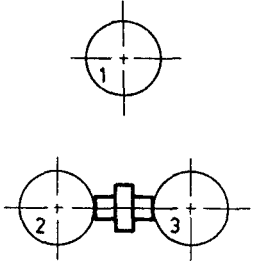
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Machine No. _____ Date _____ Inspector _____

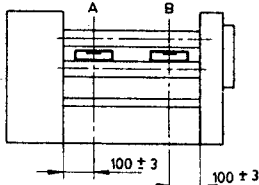
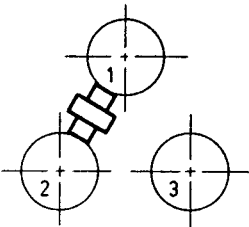
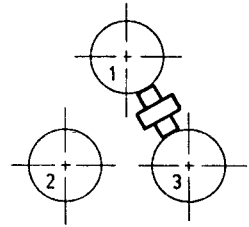
GEOMETRICAL TESTS

All dimensions in millimetres.

Sl No.	Figure	Object	Measuring Instruments	Instructions for Testing	Permissible Deviations	Actual Error
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	a  b 	Alignment of the machine Longitudinal direction Transverse direction	Precision level and straightedge	Set the precision level at middle of the bottom roll and take the reading Place the straight-edge on aligned bottom roll, set up the precision level and take the reading	0.2 for a test length of 1 000 0.2 for a test length of 1 000	
2.	a  b 	Parallelism of the axes of the bottom rolls and uniformity of distance of axis of bottom rolls to the top roll Uniformity of distance of the axis of bottom rolls to the top roll	Measure columns, precision level, straight-edge, dial gauge and internal micrometer	The tests are to be carried out at the Points A and B. Designation of the rolls: 1 Top roll 2 and 3 Bottom rolls Adjust the bottom roll 2 with straightedge and precision level to the bottom roll 3 at Points A and B (Test only for vertically adjustable bottom rolls) Arrange the rolls in such a way that the distance between the bottom rolls and the top rolls can be measured with the dial gauge. Place the straight-edge on the aligned bottom rolls. Secure the measuring column with the dial	0.1 for test length of 1 000 0.1 for test length of 1 000	A)..... B)..... Mean value... A)..... B)..... Mean value...

Sl No.	Figure	Object	Measuring Instruments	Instructions for Testing	Permissible Deviations	Actual Error
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	c 	Uniformity of distance of the axis from the bottom rolls		gauge to the straightedge and set the gauge pin of the dial gauge on the top roll (Point A). Repeat the test for Point B and calculate the mean value Measure the distance between the bottom rolls 2 and 3 (Points A and B) and calculate the mean value	i) At individually adjustable bottom rolls: 0.8 for top roll diameter (trd) up to 200 1.2 for trd above 200 up to 500 1.5 for trd above 500 ii) For fixed or coupled bottom rolls: 0.4 for trd up to 200 0.6 for trd above 200 and up to 500 0.8 for trd above 500	A)..... B)..... Mean value... A)..... B)..... Mean value... A)..... B)..... Mean value... A)..... B)..... Mean value...

(NOTE - The test serial No. 2 is not to be carried out on rolls that are adjustable on one side with an indicator device)

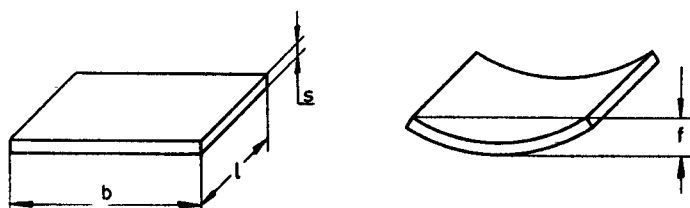
Sl No.	Figure	Object	Measuring Instruments	Instructions for Testing	Permissible Deviations	Actual Error
(1)	(2)	(3)	(4)	(5)	(6)	(7)
3.	 a  b 	Uniformity of distance between the axis From the top roll 1 and the bottom roll 2 From the top roll 1 and the bottom roll 3	Feeler gauge and micrometer	The tests are to be carried out at the Points A and B. Designation of the rolls: 1 Top roll 2 and 3 Bottom rolls Adjust the rolls as in the Test SI No. 2(a) and 2(b). Load the rolls by bending 2 strips of plate inserted at Points A and B. When a sag of $F \geq 3S$ has occurred. The test is carried out outside the test strip. (NOTE — The detail of the test been given in Annex A) Measure the distance between the top roll 1 and the bottom roll 2 (Points A and B) and calculate the mean value Measure the distance between the top roll 1 and the bottom roll 3 (Points A and B) and calculate the mean value (NOTE – The test SI No. 3 is not to be carried out on rolls that are adjustable on one side with an indicator device)	1.0 for top roll diameter (trd) up to 200. 1.3 for trd above 200 and up to 500 1.6 for trd above 500 1.0 for top roll diameter (trd) up to 200. 1.3 for trd above 200 and up to 500 1.6 for trd above 500	A)..... B)..... Mean value... A)..... B)..... Mean value... A)..... B)..... Mean value... A)..... B)..... Mean value... A)..... B)..... Mean value... A)..... B)..... Mean value...

ANNEX A

(Geometrical Tests Sl No. 3)

A-1 As a result of a defined loading of the rolls (approximately 1.0 percent of permissible machine loading level) the clearance of the roll guides and the hinged bearings should be compensated in order to carry out the measurement in the position of the rolls during bending.

The test strips shall be of suitable quality steel with a yield stress of about -250 N/mm^2 and they shall have the following dimensions:



$$l \approx \frac{1}{5} l_1$$

$$s \approx \frac{1}{2} s_{\text{Max}}$$

$s \approx$ Plate thickness

$l =$ Max bending length

$b =$ Plate width $> t$

$t =$ Pitch of bottom rolls

$f =$ Sag $\geq 3s$

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110 002
Telephones : 323 01 31, 323 33 75, 323 94 02

Telegrams : Manaksanstha
(Common to all offices)

Regional Offices :

Telephone

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg
NEW DELHI 110 002

{ 323 76 17
323 38 41

Eastern : 1/14 C. I.T. Scheme VII M, V. I. P. Road, Kankurgachi
CALCUTTA 700 054

{ 337 84 99, 337 85 61
337 86 26, 337 91 20

Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160 022

{ 60 38 43
60 20 25

Southern : C. I. T. Campus, IV Cross Road, CHENNAI 600 113

{ 235 02 16, 235 04 42
235 15 19, 235 23 15

Western : Manakalaya, E9 MIDC, Marol, Andheri (East)
MUMBAI 400 093

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